

REMARKS

Initially, in the Office Action dated December 22, 2003, the Examiner objects to the drawings for failing to comply with 37 C.F.R. §1.84(p)(5) because they include reference signs not mentioned in the description. Claim 8 has been objected to because of informalities. Claims 6 and 7 have been objected to under 35 U.S.C. §101 as being directed to non-statutory subject matter. Claims 10 and 11 have been rejected under 35 U.S.C. §101 as being directed to non-statutory subject matter. Claims 1-11 have been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,462,579 (McKinsey) in view of U.S. Patent No. 6,631,518 (Bortnikov et al.).

By the present response, Applicants have amended the specification to further clarify the invention. Applicants have canceled claims 7 and 11 without disclaimer. Further, Applicants have amended claims 1, 6 and 8-10 to further clarify the invention. Claims 1-6 and 8-10 remain pending in the present application.

Drawings Objections

Figs. 7-10 have been objected to as having one or more reference characters that have not been included in the specification. Applicants have amended the specification to further clarify the invention and respectfully request that these objections be withdrawn.

Claim Objections

Claim 8 has been objected to because of informalities. Applicants have amended this claim to further clarify the invention and respectfully request that this objection be withdrawn.

35 U.S.C. §101 Rejections

Claims 6, 7, 10 and 11 have been rejected under 35 U.S.C. §101 as being directed to non-statutory subject matter. Applicants have amended the claims to further clarify the invention, and to include the Examiner's suggestions, and respectfully request that these rejections be withdrawn.

35 U.S.C. §103 Rejections

Claims 1-11 have been rejected under 35 U.S.C. §103(a) as being unpatentable over McKinsey in view of Bortnikov et al. Claims 7 and 11 have been canceled. Applicants respectfully traverse these rejections as to the remaining pending claims.

McKinsey discloses compiling source code where a compiler generates immediate code from the source code, generates object code instructions from the intermediate code and schedules the object code instructions. Object code instructions are scheduled by inserting a speculation check into the object code instructions, storing recovery code associated with the speculation check and generating a control flow graph. The control flow graph is generated by converting the speculation check to a non-flow control check instruction, attaching one or more pseudo instructions to the check instruction and converting the non-flow control

check instruction to a flow control check instruction, where the pseudo code instructions represent recovery code behavior for the recovery code associated with the check instruction.

Bortnikov et al. discloses a profiling system wherein profile data is stored in a separable hierarchical fashion such that profile data for each compile procedure in a computer program can be readily identified and utilized. In particular, each source module has a corresponding profile data file and each procedure has a corresponding procedure profile area. The system and method also includes a mechanism for verifying the existence and validity of profile information, and a mechanism for handling invalid profile information.

Regarding claims 1 and 8-10, Applicants submit that neither McKinsey nor Bortnikov et al., taken alone or in any proper combination, disclose, suggest or render obvious the limitations in the combination of each of these claims of, inter alia, a one time compile in a computer that includes generating second object codes not using a speculation mechanism from a repetitively executed fragment of a source program, or generating third object codes that perform a control transfer so that after a number of times of speculation failure is detected by a speculation check instruction during execution of the first object codes satisfies a predetermined condition, the second object codes for the repetitively executed program fragment are executed. The Examiner asserts that McKinsey discloses generating second object codes at col. 2, lines 65-66 and col. 4, lines 33-35. However, these portions of McKinsey merely disclose storing recovery code associated with a speculation

check to be executed in the case of a failed speculation. McKinsey discloses generating codes using the speculation mechanism. In contrast, the claims of the present application recite generating a second object codes not using the speculation mechanism from a repetitively executed fragment of the source program.

The Examiner admits that McKinsey fails to disclose or suggest a control transfer where after a number of times a speculation failure is detected by the speculative check instruction during execution of the first object code satisfies a predetermined condition, the second object codes for the repetitively executed program fragment being executed, but asserts that Bortnikov et al. discloses these limitations, in the claims of the present application, at col. 2, lines 46-53, col. 4, lines 32-33, and col. 6, lines 34-39 in Bortnikov et al. However, these portions of Bortnikov et al. merely disclose organizing profile information in a hierarchical fashion to eliminate re-profiling a program when a software error is fixed, hooks causing data counters to be updated, accumulating branch decisions, and that arcs in a control flow graph (CFG) have associated weights used by a compiler to make optimization decisions as to how to order blocks in memory. This is not generating object codes that perform a control transfer so that after a number of times of a speculation failure is detected by the speculation check instruction during execution of a first object codes satisfies a predetermined condition, second object codes for a repetitively executed program fragment being executed, as recited in the claims of the present application. Bortnikov et al. merely relates to a profiling system for compiled procedures in a computer program for easy identification and utilization.

Bortnikov et al. does not disclose or suggest generating object codes that perform a control transfer, detecting a number of times of a speculation failure, or executing second object codes based on this detection.

Bortnikov et al. teaches an instrumentation phase where a program is retrofitted where "information collecting" instructions, a benchmarking phase where the program is run and profile information is collected and an optimization phase where the program is recompiled and optimized in light of the profile information (see col. 4, lines 55-61). Therefore, Bortnikov et al. discloses compiling twice, a provisional compile and a profile collecting execution, in order to obtain a final object program. In contrast, the limitations in the claims of the present application relate to a one time compile where a final program can be obtained at a single compile.

Regarding claims 2-6, Applicants submit that these claims are dependent on one of independent claims 1 and 10 and, therefore, are patentable at least for the same reasons noted regarding these independent claims. For example, none of the cited references disclose or suggest where the predetermined condition in step (c) is a ratio of the number of times a speculation failure is detected by the speculation check to a number of times the repetitively executed program fragment is executed exceeds a predetermined value.

Accordingly, Applicants submit that neither McKinsey nor Bortnikov et al., taken alone or in any proper combination, disclose, suggest or render obvious the limitations in each of claims 1-6 and 8-10 of the present application. Applicants

respectfully request that these rejections be withdrawn and that these claims be allowed.

In view of the foregoing amendments and remarks, Applicants submit that claims 1-6 and 8-10 are now in condition for allowance. Accordingly, early allowance of such claims is respectfully requested.

To the extent necessary, Applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, or credit any overpayment of fees, to the deposit account of Antonelli, Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135 (referencing attorney docket no. 500.40122X00).

Respectfully submitted,

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